

Figure 1. Phylogenetic relationship of the three bacterial strains and one substrain inferred from comparative analysis of 16S rDNA sequences. The tree is based on neighbour-joining distance analysis of sequences containing a minimum of 1430 nucleotides.

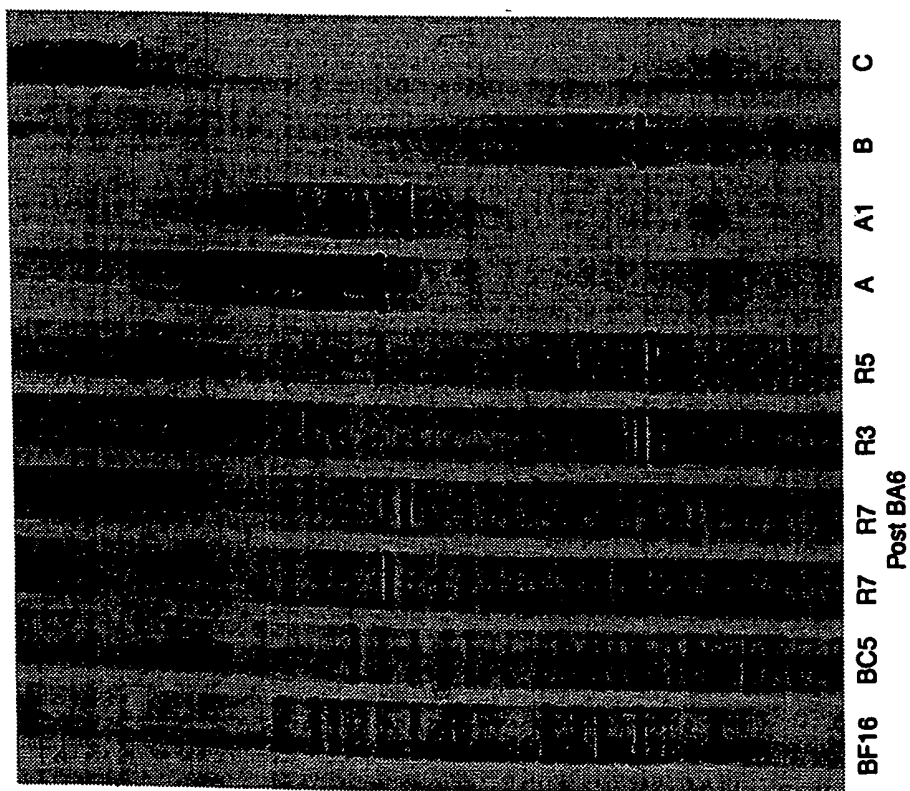


FIG. 2. Denaturing gradient gel electrophoresis (DGGE) of biomasses from selected cultures and ammonia-oxidizing bacteria described herein.

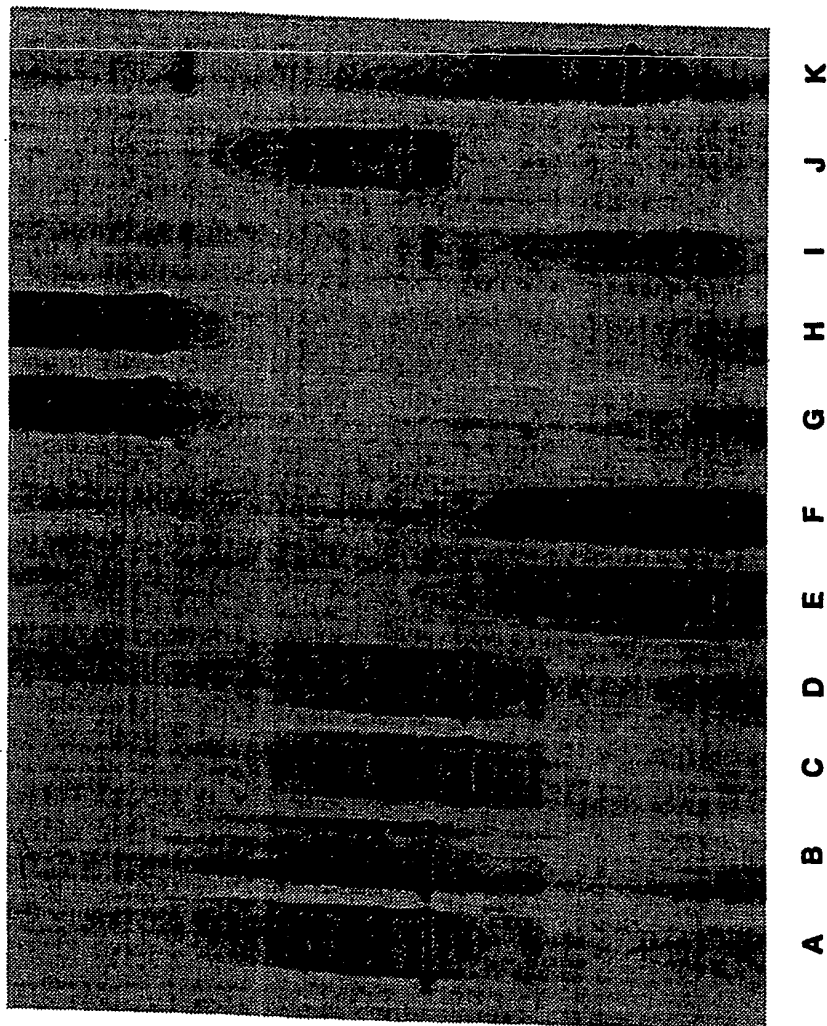


Fig. 3. Denaturing gradient gel electrophoresis (DGGE) demonstrating the uniqueness of the bacterial strains reported herein. There are two replicates of each bacteria type: Type A (lanes A and B), Type A1 (lanes C and D), Type B (lanes E and F) and Type C (lanes G and H). Also shown are results for pure cultures of *Nitrosospira multiformis* (lane I), *Nitrosomonas cryotolerans* (lane J), and *Nitrosomonas europaea* (lane K).

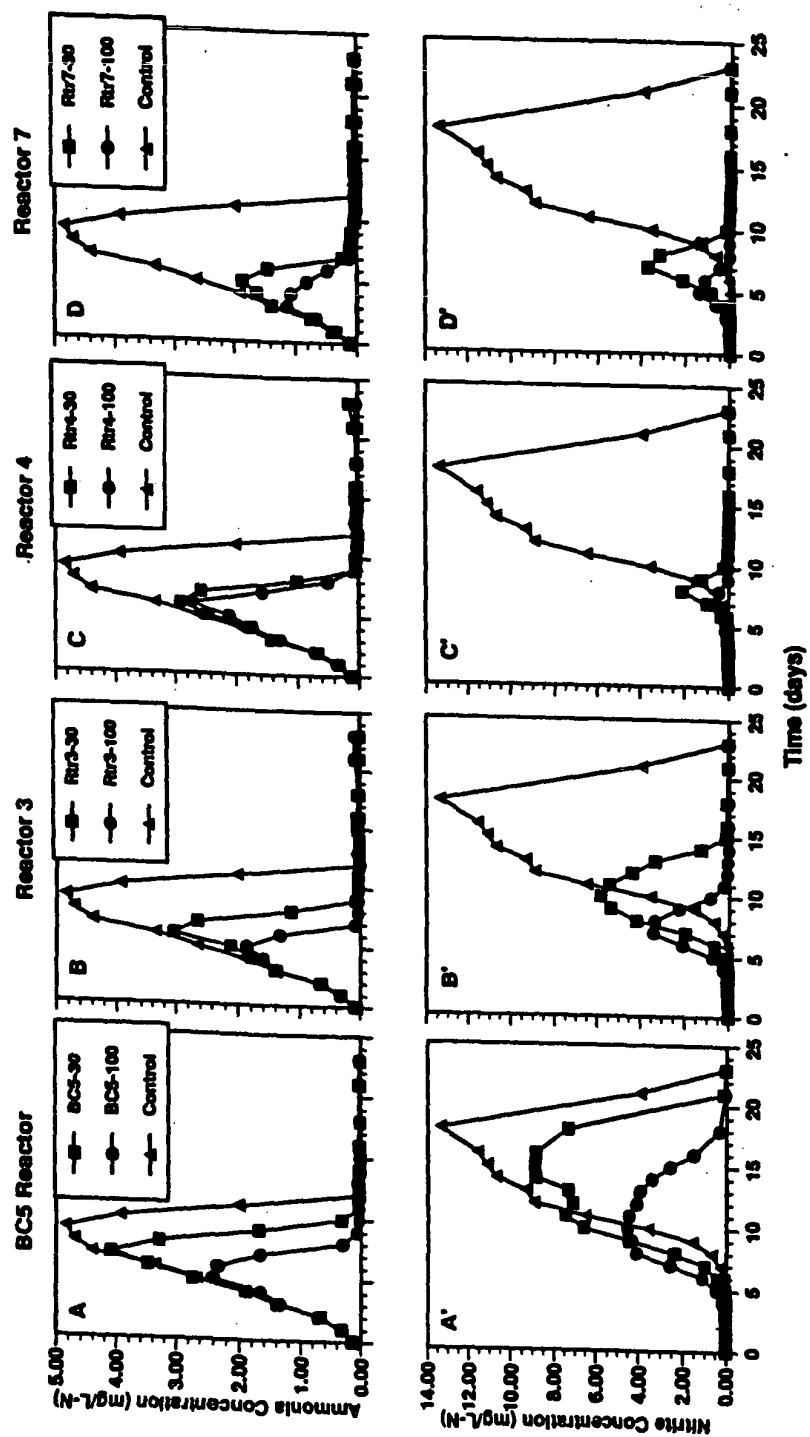


Figure 4. Mean ammonia and nitrite trends for the Bacterial Additives VI test (N=3). For each bacterial mixture data are presented for aquaria dosed with 30 ml (B) and 100 ml (D) of mix along with the control aquaria (A) which did not receive a mixture. BCS ammonia (A) and nitrite (A'); Rtr3 ammonia (B) and nitrite (B'); Rtr4 ammonia (C) and nitrite (C'); and Rtr7 ammonia (D) and nitrite (D').

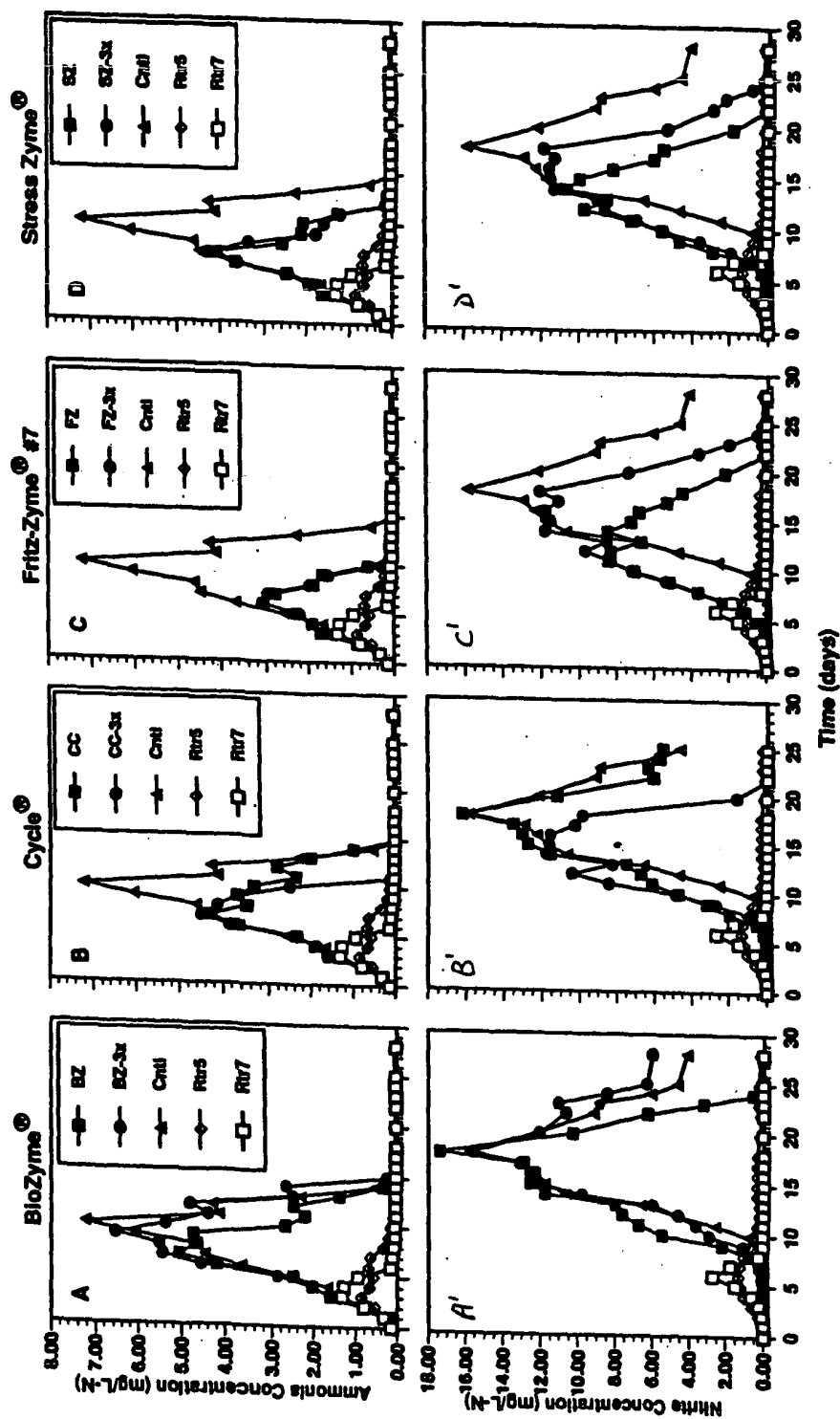


Figure 5. Mean ammonia and nitrite trends for the Bacterial Additives VII test (N-3). Four commercially available bacterial mixtures: BioZyme® (A, A' [BZ, Aquarium Products]), Cycle® (B, B' [CC, Roll C. Hagen Corp.]), Fritz-Zyme® #7 (C, C' [FZ, FRITZ Pet Products]) and Stress Zyme® (D, D' [SZ, Aquarium Pharmaceuticals]) were compared to two bacterial mixtures (BZ-3x, CC-3x, FZ-3x, SZ-3x) containing the bacterial strains incorporated herein. Each commercially available mixture was used per the manufacturer's directions (B) and at 3x the prescribed dosage (3x) and also compared to control aquaria (A) which did not receive a bacterial mixture.

Figure 6

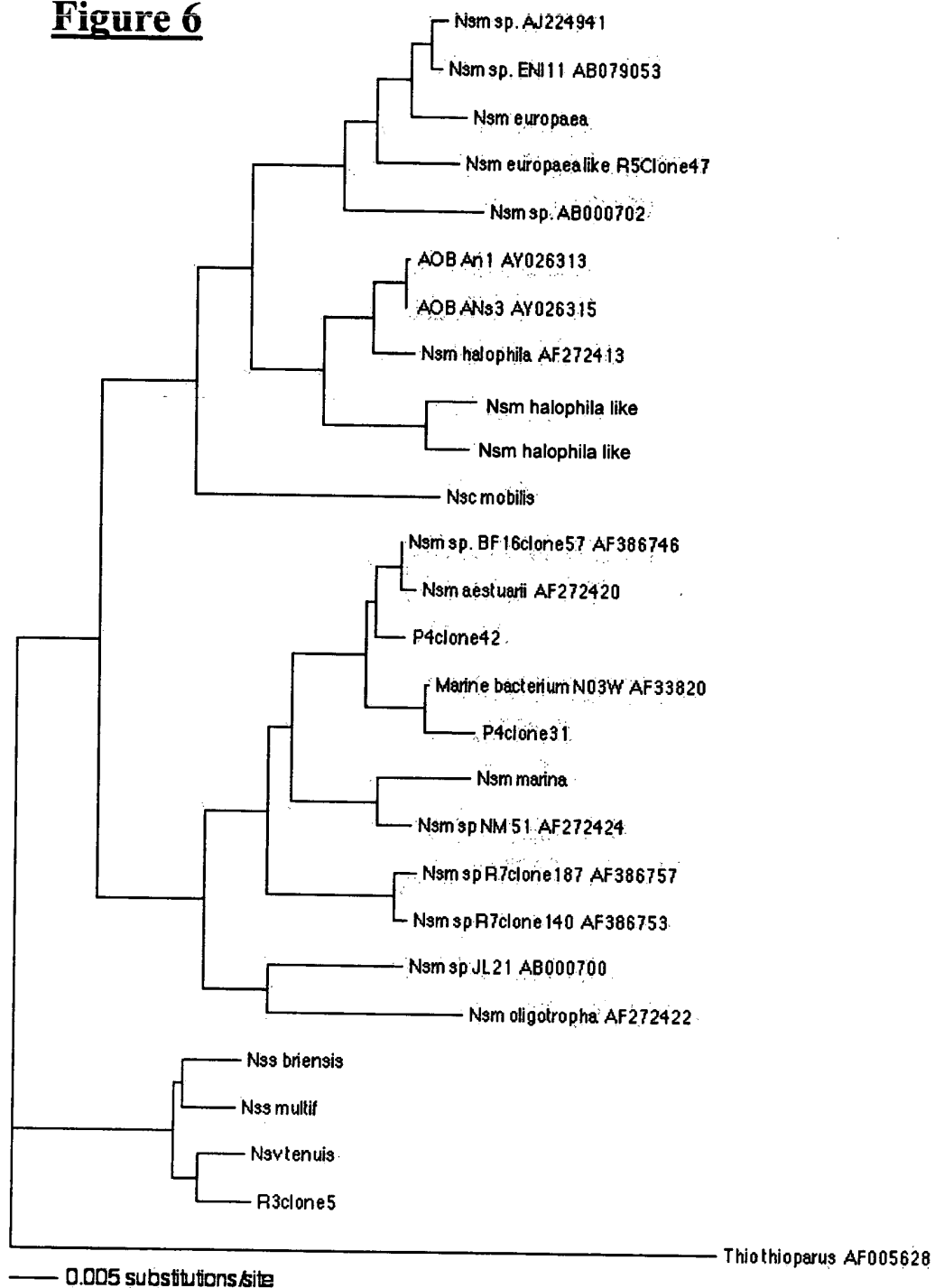


Figure 7

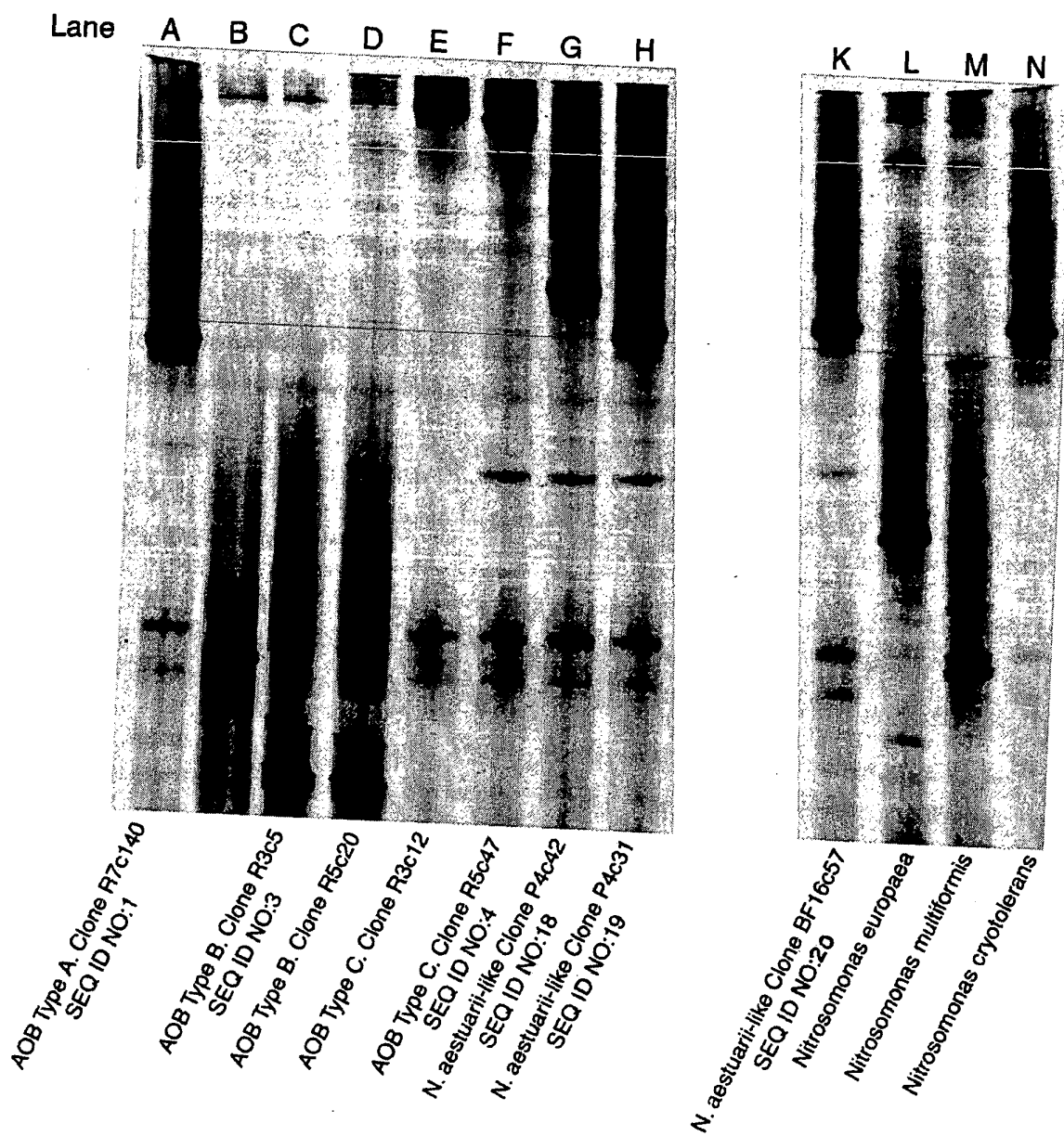
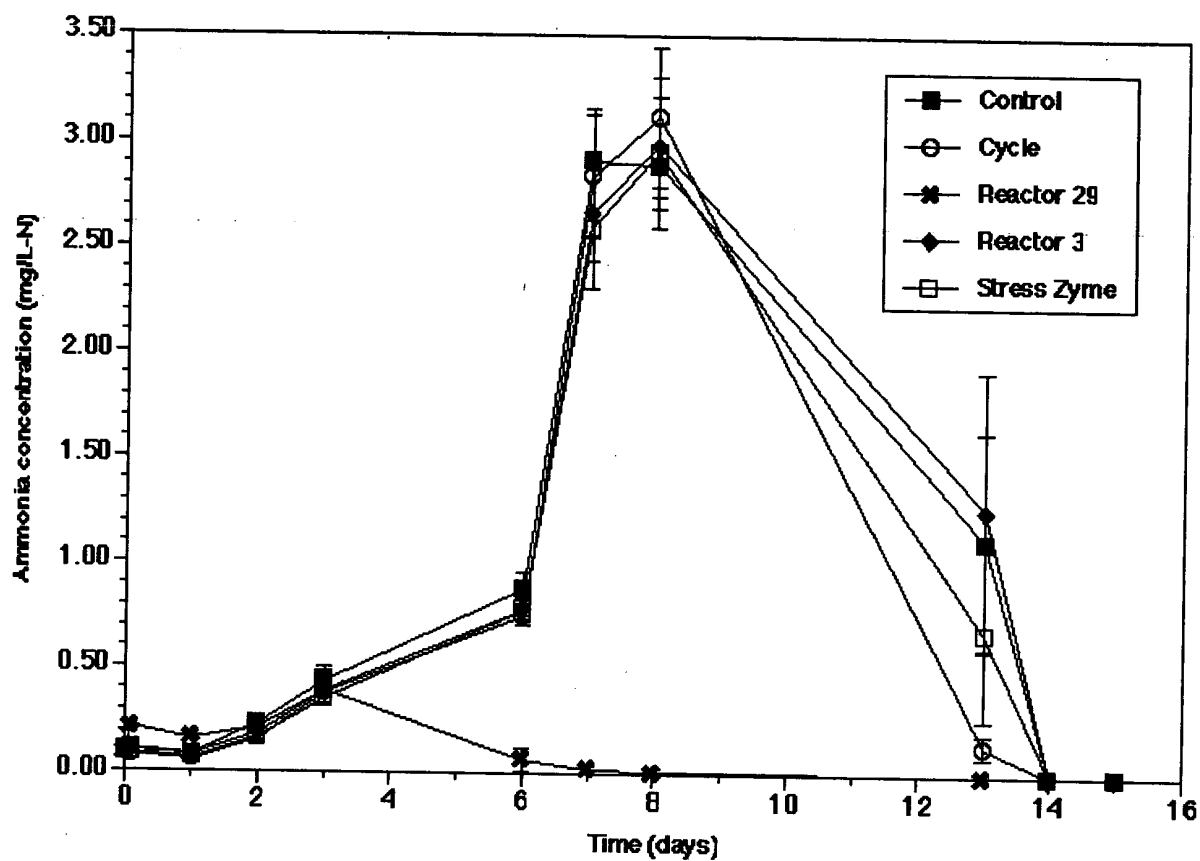
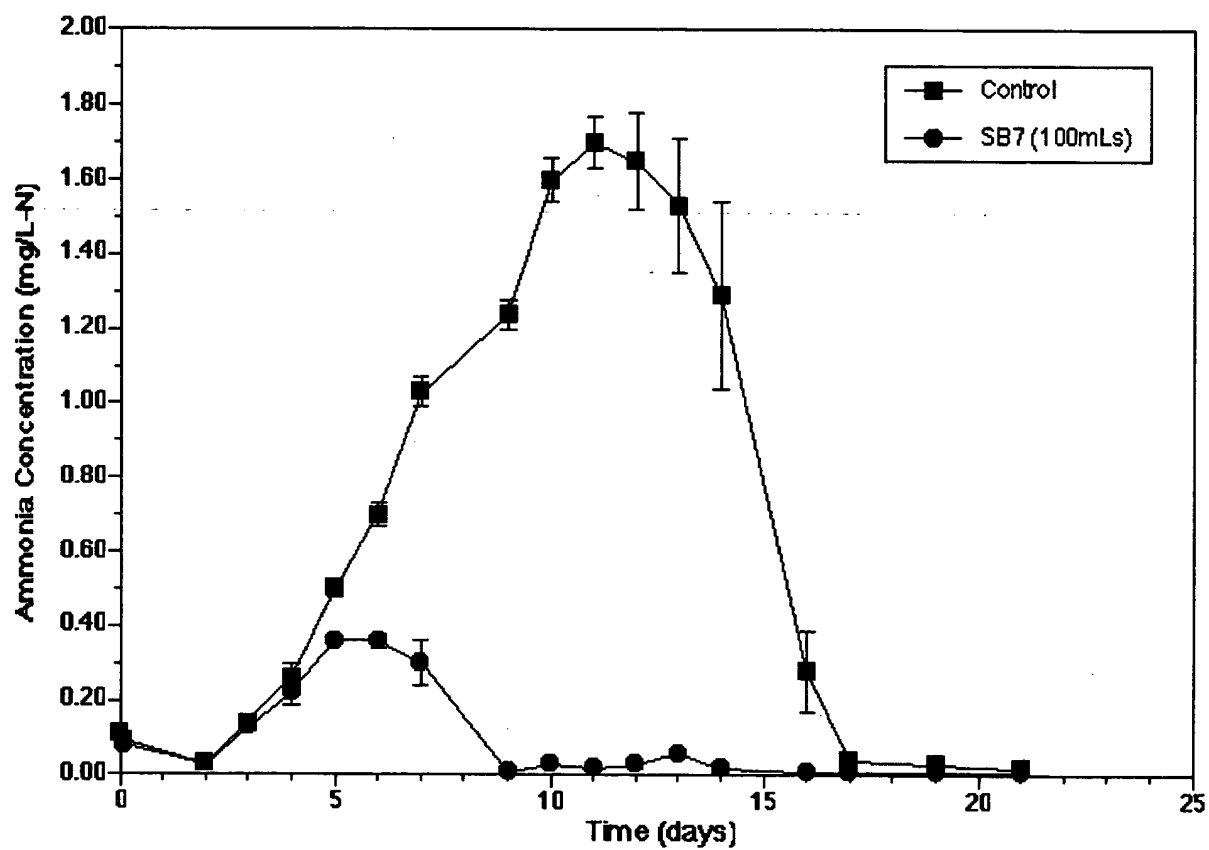


Figure 8



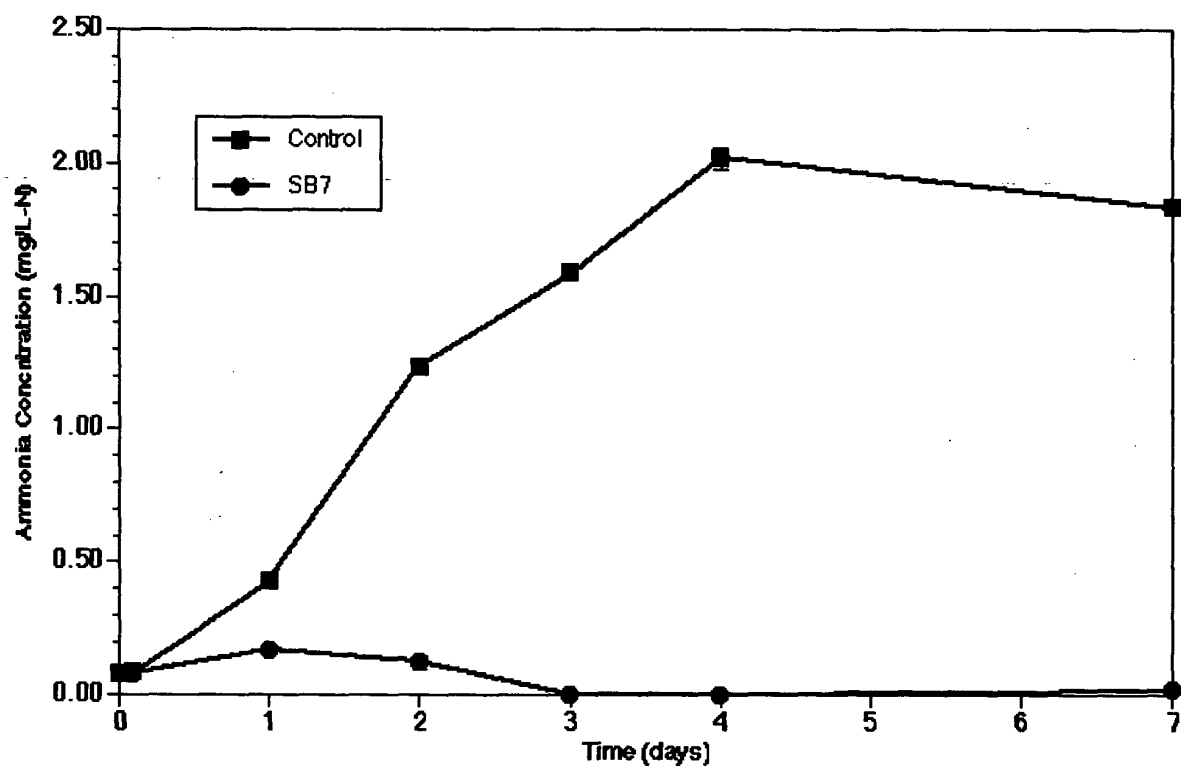
Mean ammonia trends (N=3) for aquaria dosed with AOB bacteria in accordance with an embodiment of the present invention or commercially available nitrifying bacteria mixtures.

Figure 9



Mean ammonia trends (N=4) for saltwater aquaria dosed with saltwater AOB bacteria in accordance with an embodiment of the present invention and control aquaria that were not dosed.

Figure 10



Mean ammonia trends (N=4) for aquaria dosed with saltwater bacteria in accordance with an embodiment of the present invention and control aquaria that were not dosed.